

OS0TN-B
OSCILLOSCOPE

1. GENERAL. This procurement requires a general purpose, portable, dual-trace, differential input oscilloscope.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. OPERATIONAL REQUIREMENTS. The equipment shall be capable of operation within the minimum accuracies, limits, and specifications identified below.

3.1 Vertical amplifiers. The vertical channel(s) shall be provided with a selectable front panel input to accept either differential or single-ended inputs on all ranges. Unless otherwise specified below, requirements apply to two identical channels with or without probes attached.

3.1.1 Vertical deflection factor. 0.1 mV/div to 20 V/div continuously variable between calibrated steps. An uncalibrated condition indicator is required.

3.1.2 Vertical bandwidth. DC to 500 kHz.

3.1.2.1 Bandwidth limiting. Provisions shall be made to limit the vertical bandwidth to approximately 10 kHz.

3.1.3 Common mode rejection ratio (CMRR).

Table I. CMRR vs Frequency

<u>Range</u>	<u>CMRR</u>	<u>Coupling</u>	<u>Frequency</u>
0.1 mV	100 dB	dc	dc to 10 kHz
0.2V	40 dB	dc	dc to 10 kHz
20V	25 dB	dc	dc to 10 kHz

3.1.4 Maximum input. $\pm 350\text{V}$ (dc + peak ac) on the 0.5 V/div range and above and at least $\pm 10\text{V}$ (dc + peak ac) on the 0.2 V/div range and below.

3.1.5 Display modes. Channel A, channel B, A and B (chop or alternate), and A vs B.

3.1.6 Isolation between channels. 80 dB, minimum, at 500 kHz.

3.2 X-Y operation. The equipment shall be capable of X-Y operation.

3.3 Time base.

3.3.1 Sweep. Range: 1 $\mu\text{s}/\text{div}$ to 5 s/div continuously variable between calibrated steps. An uncalibrated condition indicator is required. Accuracy: $\pm 3\%$. A X10 magnifier shall be provided. Accuracy: $\pm 5\%$.

3.3.2 Triggering modes. Free-run, normal, and single sweep.

3.3.3 Trigger sources. Line, internal, and external.

3.3.4 Trigger sensitivity. Internal: 0.5 division or less from 50 Hz to 500 kHz. External: 0.2V peak-to-peak or less from 50 Hz to 1 MHz.

3.3.5 Trigger level and slope. The trigger level and slope shall permit selection of triggering at any point on the displayed waveform or on an external trigger of up to $\pm 100V$.

3.4 Horizontal amplifier.

3.4.1 Horizontal bandwidth. DC to 300 kHz.

3.4.2 Horizontal deflection factor. 0.1 V/div to 1 V/div continuously variable between calibrated steps. An uncalibrated condition indicator is required.

3.4.3 Horizontal maximum input. $\pm 350V$ (dc + peak ac).

3.5 Calibrator. The equipment shall be provided with an internally generated calibrator square-wave output that has an amplitude accuracy within $\pm 1\%$.

3.6 CRT. The CRT shall have an 8 x 10 division display area with no less than 0.8 cm/div. The horizontal and vertical centerlines shall be marked in 0.2 subdivision increments and in 1 division cardinal increments. The graticule shall be of the internal, nonparallax type.

3.6.1 CRT controls and adjustments. Focus, beam finder, trace rotation, and intensity.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Operation at 400 Hz is not required. Maximum power consumption: 150W.

4.2 Weight. 20 kg (44 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.4 Accessories. One accessory pouch, two 10:1 probes, and two dual BNC to triple banana plug adapters.